Cattail Chronicles

Issues Affecting the Surface Waters of Lake County

Lake County Health Department and Community Health Center
Dale Galassie, MA, MS, Executive Director

Volume 17, Issue 2 Fall 2007

A Lake You Should Know: Cross Lake

By: Mike Adam

Where can you be on a lake in Lake County where the bow of your boat is in Illinois and the stern is in Wisconsin? There are only two lakes in Lake County that straddle the Illinois-Wisconsin state border: Cross Lake and Benet Lake. Cross Lake is an 89-acre glacial lake, with 30% located in Antioch Township and the other 70% in Kenosha County, Wisconsin. This private lake is used primarily for recreational boating, fishing, and swimming. The lake has a maximum depth of 34 feet, an estimated average depth of 17 feet, and lake volume of 1153 acre-feet (Lake County Health Department-Lakes Management Unit (LMU) estimate). Water leaves the lake to the northwest, flows back south to Lake Catherine, and then into the Fox River.

The LMU last visited Cross Lake in 2003 and found the water quality to be above average in comparison to many other lakes in Lake County. Nutrient concentrations (such as phosphorus and nitrogen) and solids (such as total suspended solids) were low due to the healthy aquatic plant densities, which keep nuisance algae blooms to a minimum. This resulted in above average water clarity, which was confirmed by a Secchi transparency reading in May of 19 feet. This is one of the deepest Secchi readings we have recorded since 1999. Most of the water quality parameters measured in 2003 were largely unchanged compared to our 1999 lake study.

During the 2003 study, we found an above average diversity of plants in Cross Lake with 18 species present (this ranks #13 of 151 lakes in the county). Even though the exotic, invasive plant species Eurasian Watermilfoil was one of the most frequently found plants in the lake, a healthy native population helped to minimize milfoil densities throughout the summer.

(See Cross Lake, page 6)

Inside this issue:

For information contact:

The Lakes Management Unit
Environmental Health Services
847- 377- 8030
http://www.co.lake.il.us/health/ehs/lakes.asp

LakeCounty
Health Department and
Community Health Center

Minnesota's No Phosphorus Law is a Model for Lake County

By: Shaina Keseley

"RESULTS FROM THIS STUDY IN MINNESOTA PROVE THAT LEGISLATIVE RESTRICTION OF P LAWN FERTILIZERS CAN HAVE BIG EFFECTS FOR MINIMAL COSTS."

Fertilizer containing phosphorus (P) is needed for a green lawn, right? In most cases this isn't true since a typical lawn already has adequate amounts of P. Soil tests can be done to determine whether your lawn needs additional P, but new lawns are typically the only lawns in this area that need it. When you purchase a bag of fertilizer, there are three numbers listed. The middle number represents P and should be listed as zero.

A study conducted in 2005 in the Minneapolis/St. Paul (Twin Cities) area of Minnesota found that 75% of lawns tested had high levels of P and that the addition of P did not improve turf growth. Additionally, when P was added to lawns with high P levels, P concentrations in runoff water increased significantly. This high P runoff can contribute to algal blooms in lakes.

Minnesota enacted a statewide Phosphorus Lawn Fertilizer Law (PLFL) in 2002. This law initially restricted P fertilizer in the seven county metropolitan area of the Twin Cities. The law was expanded in 2004 to restrict the use of P fertilizer statewide, active January 1, 2005. A study was recently conducted to see if this legislation has been successful, and only two years after the statewide implementation, the answer is yes. The study reports that P free fertilizer is readily available to consumers (found in 97% of stores). Also, 82% of lawn fertilizer purchased in 2006 was P free, decreasing tons of P in lawn fertilizers by 48% between 2003 and 2006. Another finding was that P free fertilizer did not cost the consumer a noticeable amount more than fertilizer containing P, and customers at stores supplying no P fertilizer were reported to be very supportive of the law.

Water quality was also monitored by testing runoff from watersheds in different municipalities. Watersheds in the city of Plymouth, a municipality that had restricted the use a P fertilizer since 1999, had less P in runoff from pervious areas (e.g. lawns) than Maple Grove, a municipality that became included in the PLFL in 2004. In fact, there was a 12-16% reduction in P from runoff in the Plymouth watersheds. These results can be explained by the fact that Plymouth soil had more time to flush out the built-up P than Maple Grove. This reduction in P adds up financially, since typical storm water best management practice (BMP) construction costs approximately $500/lb of P removed, and the implementation of the PLFL in Minnesota has had minor costs for communities. Results from this study in Minnesota prove that legislative restriction of P lawn fertilizers can have big effects for minimal costs.

Local Lake County municipalities are starting to take notice of the benefits of instituting a no P fertilizer ordinance. The Village of Antioch recently enacted a ban on the use of P fertilizers within village limits that will require village stores that carry fertilizer to post signs about the ban and provide a no P fertilizer alternative. Village officials are encouraging others in the county to follow in their footsteps. Other villages are starting to look into similar ordinances. The Lake County Health Department-Lakes Management Unit strongly encourages such ordinances and hopes that it becomes a popular trend in Lake County.

The Lakes Management Unit compiled a listing of local businesses that carry no-phosphorus fertilizers. View this list on our website: (www.co.lake.il.us/health/lakes.asp)

Illinois Lakes Management Association

Come learn more about lake, reservoir, and watershed management

February 28-29, Route 66 Hotel and Conference Center, Springfield, IL

http://www.ilma-lakes.org/

Have an issue on your lake that you think others would like to hear about? Consider submitting an abstract and presenting your story.

Wetland Conservation Encourages Green Heron

By: Leonard Dane

One of the common fish eating birds of Lake County is the Green Heron (*Butorides striatus)*. The Green Heron, sometimes called the Green-Back Heron, is the smallest heron of North America standing between 17 – 22 inches with a 25 – 26 inch wingspan. This wading bird is identified by a greenish-black cap on its head, a green back, wings that go from grey-black to green or blue, a chestnut colored neck, and short yellow legs. Herons are not known for their musical aptitude. The call of the Green Heron is a sharp, croak-like QUA, QUA. However, the calls are important communication between mates, young, and other Green Herons.

The Green Heron can be found along rivers, lakes and ponds from southern Canada to Central America, avoiding the higher altitudes and drier climates. During the winter months they migrate to the southern United States and into Central America.

Generally solitary, shy birds, the Green Heron nests as isolated pairs and not in large colonies like the Great Egret or Great Blue Heron. The male chooses a nesting site and defends his nesting territory both before and after mating. A male will have only one mate per season and attracts the female through visual displays and the quality of their nesting location. Once the mate is chosen, the two birds work as a team to build the nest. The male, who chose the site, gathers sticks and other materials while the female takes those materials and constructs the nest. The nest can be built in trees, a dense thicket, or reeds and cattails. The female generally lays three to six eggs that hatch in approximately three weeks. Again, team work is employed in the incubation of the eggs and the feeding of the chicks once they hatch. The chicks are fed regurgitated food, which is stimulated by the chicks grabbing the parent's bill when it returns to the nest. Three weeks after hatching, the chicks are fully feathered and ready to leave the nest.

Like the others in its family, the Green Heron is an excellent fisherman. It moves through the shallows in a stealthy manner with its sword-like bill ready to spring at its next meal. Green Herons feed mainly on small fish but will consume crayfish, mussels, insects, spiders, leeches, frogs, and just about anything else along the shore. They have been known to drop bait to attract small fish, including bread crust, insects, earthworms, twigs, or even feathers.

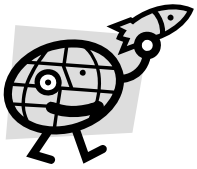
Homeowner associations and property owners can help these birds by encouraging the conservation of wetlands and undeveloped areas around lakes, preventing the removal of shoreline vegetation (particularly, trees and shrubs), and minimizing any disturbance to nesting birds.

Green Heron on the prowl.

"IT MOVES THROUGH THE SHALLOWS IN A STEALTHY MANNER WITH ITS SWORD-LIKE BILL READY TO SPRING AT ITS NEXT MEAL."

Green Heron after catching a fish.

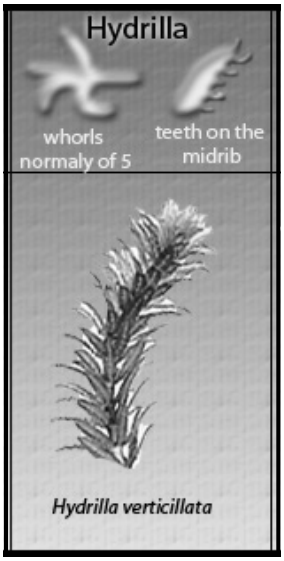
ONLINE ADVENTURES



1. **http://kidsregen.org/**
   A website for kids to interact with their surrounding environment.
2. **http://pbskids.org/eekoworld/index_flash.html**
   Create a creature and answer trivia question to build your environment.
3. **http://www.epa.gov/nps/kids/DARBY.HTM**
   Become an aquatic crusader and learn how to fight water pollution.

Invasive Species Pose Threat to Illinois

By: Adrienne Orr



Invasive, exotic species such as Eurasian Watermilfoil have been a problem in Lake County for some time. Due to numerous lakes in the county and their high recreational use, new invasive, exotic species are continually threatening the lakes. Recently, another species has emerged in the Midwest; *Hydrilla* spp. It has appeared in Western Kentucky, an Indiana lake, and in northeastern Wisconsin, and therefore poses a possible threat to be transferred to Illinois lakes.

Hydrilla spp. is a submersed aquatic plant with a similar growth form as the native *Elodea* spp. It has a long, slender stem that is rooted to the lake bottom. Along the stem are small serrated leaves (10-50 mm long) which are arranged in whorls of four to eight. Near the surface of the water the plant may branch and form dense mats.

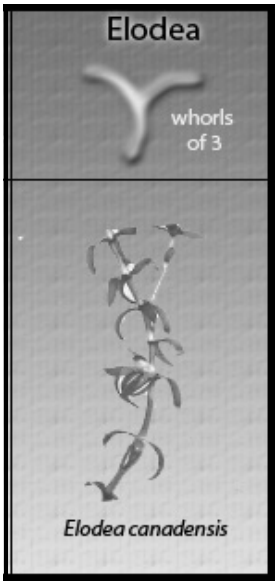
Referred to as "the perfect aquatic plant," *Hydrilla* spp. has adapted to many aquatic habitats and like other invasive species, may displace native aquatic plants. *Hydrilla* spp. has a high growth rate, which allows it to reach the water's surface before other native, beneficial species. This means it can intercept light from other native plants, and keep them from growing. *Hydrilla* spp. can grow under a wide range of water chemistry conditions and at low light levels, with as little as 1% of the lake surface light level, allowing it to grow in deeper areas of a lake.

It is able to reproduce four different ways allowing it to thrive in adverse conditions. Seed dispersement is a very minor part of the reproduction and involves the male and female flowers that randomly bump at the waters surface. Fragmentation is the most common reproduction method, with approximately half of the fragments broken from a plant producing a new plant. It can also reproduce via turions (buds at leaf axil) and tubers (attached to root tips), which can both lay dormant in the sediment for a couple of years and then sprout to form new plants.

There are many preventative measures we can take to keep invasive species from entering our lakes. They include: 1) removing any visible mud, plants, fish, or snails on your boat and/or trailer before transportation, 2) eliminate water from equipment before transporting, e.g. flush motor and drain live well, 3) clean and dry anything that came into contact with the water e.g. boat, gear, pets,
4) do not release any plants into a water body, and 5) report any possible infestation to the Lakes Management Unit at (847) 377-8030.

Hydrilla spp. has not been found in Illinois. By taking precautionary steps and educating others we can keep it out of our waters.

"*HYDRILLA* SPP. IS A SUBMERSED AQUATIC PLANT WITH A SIMILAR GROWTH FORM AS THE NATIVE *ELODEA* SPP. .."



Invasive Species Workshop
-Focusing on *Hydrilla*-

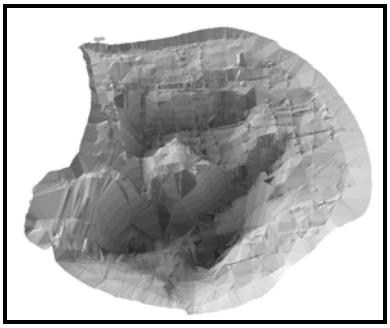
February 16, 2008, 8 am; Milwaukee Hyatt Regency Hotel
ILMA, along with other organizations, is convening a seminar on invasive aquatic plants, with a focus on *Hydrilla*.

For further information, contact Dr Thomas M. Slawski at (262) 547-6721 (tslawski@sewrpc.org).
Pre-registration is required. Please visit www.co.lake.il.us/health/ehs/lakes.asp for updates and more information.

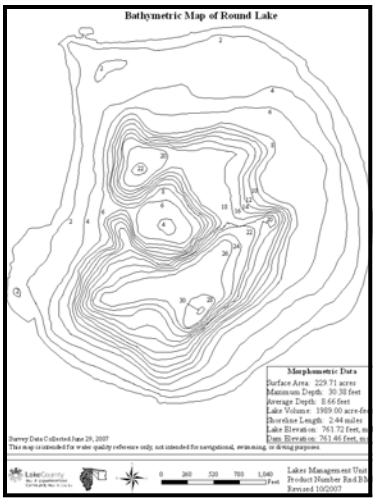
Bathymetric Maps: An Essential Tool

By: Leonard Dane

The Lake County Health Department – Lakes Management Unit (LMU) has a BioSonics DT-X™ Echosounder to create accurate bathymetric (depth contour) maps of lakes, which is an essential tool for effective lake management. It provides critical information about the physical features of the lake, such as depth, surface area, volume, etc. This information is particularly important when intensive management techniques (i.e., chemical treatments for plant or algae control, dredging, fish stocking, etc.) are part of the lakes overall management plan. Some chemical herbicide treatments, such as the use of fluridone, are normally used as whole lake (distributed throughout, not dumped in one place) treatments and the target concentrations are based on volume. Without an accurate bathymetric map this information is difficult to calculate. Miscalculation could result in negative impacts to the lake. Over treatment can result in extra cost and the killing of non-target plants. Under treatment can be ineffective in killing the target plants. Also, proper depth placement of fish habitat stuctures can be determined from a bathymetric map. The LMU recommends all lakes have a recent (<10 years old) map as part of the lakes management plan.



3-D map of Round Lake.



The LMU began mapping lakes in 2006. Costs can vary, but usually range from $2,000-8,000 depending on lake size. If you are interested in having your lake mapped, please contact the LMU at 847-377-8030.

Flooding and shoreline erosion

By: Leonard Dane

This past summer was a wet one and with the rain, Lake County experienced flooding. With flooding comes the potential for shoreline erosion. Now that the water has subsided, it is a good time to survey your shoreline for possible damage. To help you determine if your shoreline has suffered, we are providing you with the following tips to detect and prevent erosion problems.

Signs of erosion problems

- ✓ Large areas of bare soil
- ✓ Measureable change in shoreline
- ✓ Trees with exposed roots along the shoreline
- ✓ Muddy water near the lakeshore following a rain event
- ✓ Unusually muddy water from streams entering the lake
- ✓ Large deposits of sediment at the mouth of the inlets
- ✓ Failing erosion control structures
- ✓ undercutting
- ✓ sloughing of the shoreline

Ways to prevent erosion

- ✓ Preserve the natural shoreline
  - o Leave a 30 foot buffer strip of native plants
  - o Allow plants to grow near your shore to help break the waves
  - o Don't mow/allow turf grass to grow to the edge of the shore
- ✓ Avoid construction within 100 feet of the shoreline
- ✓ Limit access and use of erosion prone areas
- ✓ Establish a "No Wake" Zone or No Motor Area

Methods to repair erosion

- ✓ Install a buffer strip
- ✓ Install rip-rap or gabions
- ✓ Install a sea-wall (this option is a last resort)
- ✓ Install Biolog, Fiber Roll, or Straw Blanket with Plantings
- ✓ Install A-Jacks

An example of severe shoreline erosion. (NRCS)

C2000 Grant Changes Name, Not Purpose

By: Shaina Keseley

No longer will you be applying for C2000 (Conservation 2000 Initiative) grants. Instead, put your applications in for a Partner in Conservation grant. Since C2000 was set to expire in 2009, the Illinois Department of Natural Resources (IDNR) decided to change the name to one less tied to a specific date in an attempt to generate support for continued funding through 2021. This summer, the C2000 extension passed the House of Representatives with a unanimous vote in April, and passed the Senate with a unanimous vote in May. The Governor approved the bill in August and made the public act effective January 1, 2008. This is great news for Illinois and will fund many more conservation projects.

"C2000 HAS AWARDED $34.9 MILLION SINCE IT BEGAN IN 1995 (AND HAS RESTORED)70,500 ACRES OF LAND AND PROTECTED 5,600 ACRES THROUGH EASEMENTS AND ACQUISITION."

Initially, C2000 was set-up as a six-year program to fund conservation projects for the IDNR, as well as the Illinois Department of Agriculture (IDA) and the Illinois Environmental Protection Agency, and was later extended through 2009. Public and private stakeholder partnerships are the main activities funded through the IDNR. The private portion of this is very important since 90% of Illinois is privately owned. C2000 has awarded $34.9 million since it began in 1995, and these funds have restored 70,500 acres of land and protected 5,600 acres through easements and acquisition.

A few changes were made before approval of the extension. The new bill does not include the IDA in the program as before. Funding can be used for "purposes relating to natural resource protection, planning, recreation, tourism and compatible agricultural and economic development activities." Previously, planning was not included in possible project goals. Currently, the Partners for Conservation Fund will be allotted $14,000,000 per year from 2008-2021. This is an increase from 2005 when funds were $ 7,000,000 and 2004 when funds were $ 11,000,000.
For more information: (http://www.dnr.state.il.us/orep/c2000/grants/Grants_links.htm)

Cross Lake

(Continued from page 1)

These healthy plant densities were one of the major reasons Cross Lake had good water quality, along with rare fish species. During a 2003 seining (fish) survey, conducted by Southern Illinois University students, 14 species of fish were found, including four State of Illinois threatened and endangered species. One of these species, the Pugnose Shiner, is also a threatened species in Wisconsin. These fish are very sensitive to water quality degradation and require clear water and dense plant beds to thrive.

Since the water laws in Illinois and Wisconsin are different, managing Cross Lake has additional challenges that other Lake County lakes do not have to deal with. One of the main differences is bottom ownership. In Illinois individual homeowners may own the lake bottom, while in Wisconsin, the entire bottom is owned by the state. To conduct any management activities on Cross Lake that would affect the Illinois side, all homeowners whose bottom would be impacted need to be consulted and must give permission to proceed. Any activities that would affect the Wisconsin side have to go through the Wisconsin Department of Natural Resources. So, imagine trying to deal with issues like plant management or fish stocking! Despite these challenges, the homeowner associations around the lake are doing the best they can to help maintain Cross Lake as one of the better lakes in Lake County and southeastern Wisconsin.

SUMMER INTERN

Danielle Sass was our lakes intern for the summer. This year she is finishing her degree in Environmental Science at Carthage College in Kenosha.

She helped us in the field (shown here taking a plankton sample), as well as in the office and we wish her well in her future endeavors.

Is your beach licensed? Why it should be (Part 1)

By: Mike Adam

One of the benefits of living in Lake County is that you are never too far away from a swimming beach. Since the county is located on Lake Michigan and has so many inland lakes there are plenty of places to choose from. Occasionally, beachgoers may be disappointed to find that their favorite beach is closed for the day due to high bacteria counts. This is the first of two articles that will address beach issues. Part 1 will discuss what a licensed beach is and what is required by law, and Part 2 will appear in the spring 2008 issue of *Cattail Chronicles* and will discuss what it means when a beach is closed and how to prevent it.

The Lake County Health Department's Lakes Management Unit (LMU) coordinates the Beach Monitoring Program, which monitors approximately 100 beaches in Lake County. Of these, 85 are on inland lakes and 13 are along the Lake Michigan coastline. The LMU acts as a local agent for the Illinois Department of Public Health (IDPH) to monitor bacterial levels in the water to determine if they are within limits established in the Swimming Pool and Bathing Beach Code (77 Ill. Admin. Code 820). The maximum E. coli level allowed (235 colony-forming units per 100 milliliters (cfu/100mL)) is based on guidelines established by the U.S. Environmental Protection Agency for recreational waters.

The Bathing Beach Code requires that all public bathing beaches be licensed by the state. By definition a *"public bathing beach means any body of water or that portion thereof used for the purpose of public swimming or recreational bathing, and includes beaches at: apartments, condominiums, and other groups or associations having 5 or more living units, clubs, churches, camps, schools, institutions, parks, recreational areas, motels, hotels, and other commercial establishments. It does not include bathing beaches at private residences intended only for the use of the owner and guests."* (Section 125/3.02). The one exception is a beach operated by a unit of government located on Lake Michigan.

Private beaches are not included in the definition, but association beaches, even if they are privately owned are included.

What is involved in licensing? An application must be completed and sent to the IDPH. An annual application fee of $50 is required, except for not-for-profit organizations. If the beach is new, an initial inspection will be needed which includes the evaluation of the physical, chemical, and bacteriological characteristics of the beach area. There are a number of criteria that are required for a beach to open. Some of these include providing a bathhouse or toilet with in 300 feet of the shoreline, appropriately buoying wading and swimming/diving areas, availability of a phone within 500 feet, providing a refuse container, sign postings, and presence of a U.S. Coast Guard approved ring buoy.

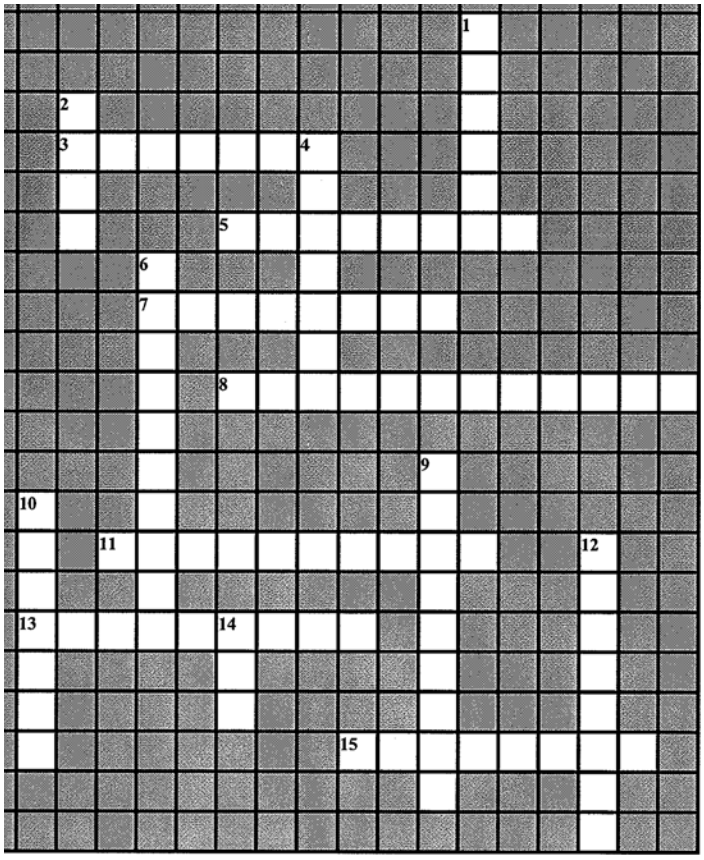
Once the beach is approved for opening, two water samples are taken at the beach every two weeks, from Memorial Day until Labor Day. If one of the sample results exceed 235 *E. coli* cfu/100 mL, the operator is advised to immediately close the beach. The beach is re-sampled the following day and remains closed until both samples collected on the same day have less than 235 cfu/100mL.

As you can see licensing a beach is not as difficult as you might have thought. For a complete list of requirements and for assistance with the licensing application, please contact Rhonda Heller at (847) 377-8004.

Be sure to catch Part 2 of this article in the next issue!!

Mariner's Cove, a licensed beach on Druce Lake.

"THE BATHING BEACH CODE REQUIRES THAT ALL PUBLIC BATHING BEACHES BE LICENSED BY THE STATE."

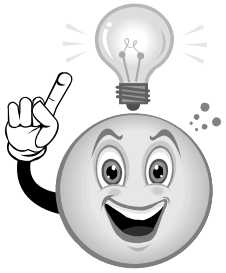


Cattail Chronicle Crossword

How well have you read your newsletter?

Down

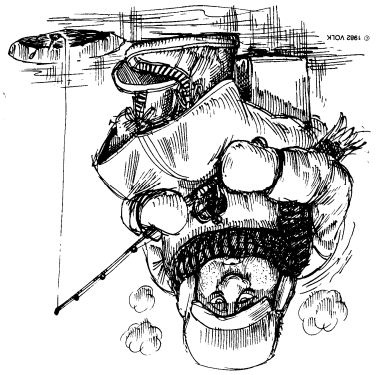
1. Danielle Sass e.g.
2. Professional lake society
4. loss of shoreline
6. algae food
9. acoustic device
10. sandy shores
12. wetland felines
14. Adrienne, Shaina, Leonard, Mike (abbr)



Across

3. required to swim
5. result of summer rains
7. new invasive species
8. to save an area
11. fish eating bird (2 wds)
13. intersects WI/IL (2 wds)
15. closes beaches

Answers: www.co.lake.il.us/health/ehs/lakes.asp



Environmental Health Services
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